



SEQUENCE LISTING

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KOHLSAEDT, LORI
RENO, JOHN

<120> HUMANIZED ANTIBODIES

<130> 014357/027 8772

<140> 09/910,483

<141> 2001-07-19

<160> 96

<170> PatentIn Ver. 2.1

<210> 1

<211> 116

<212> PRT

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<220>

<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum A

<400> 1

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30

Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Thr Asp Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 2

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide
sequence of Hum A

<400> 2

gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
tcttgccag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccgg caaacgacaa caccatttac 180

gctgacagcg tgaagggccg ttttactatt tctagcgacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac ggactctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 3
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum A

<400> 3
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 4
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL nucleotide
sequence of Hum A

<400> 4
gatatccaga tgacccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac ttaccctta ccatcagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtaccaagg tcgagattaa gcgc 324

<210> 5
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum B

<400> 5

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Ala Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ser
 115

<210> 6
 <211> 348
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH nucleotide
 sequence of Hum B

<400> 6
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 tcttgccgag caagcggttt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
 gctgacagcg tgaagggccg ttttactatt tctagcgacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac ggcctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 7
 <211> 108
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL Domain
 peptide of Hum B

<400> 7
 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15
 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30
 Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 8

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide
sequence of Hum B

<400> 8

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attacttgcc	gcgccagcca	atctatcagt	aataatcttc	actggtatca	acaaaaaccg	120
ggtaaagctc	cgaaacttct	tatctatcac	gcctctcaga	gcattagcgg	cgttccgagc	180
cgcttctctg	gctctggctc	gggcacggac	tttaccctta	ccatcagctc	tcttcagccg	240
gaagactttg	ccacctatta	ttgtcagcag	tctaatagct	ggccgtatac	cttcggtcaa	300
ggtaccaagg	tcgagattaa	gcgc				324

<210> 9

<211> 116

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum C

<400> 9

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly	1	5	10	15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr	20	25	30	
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val	35	40	45	
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val	50	55	60	
Lys Gly Arg Phe Thr Ile Ser Gly Asp Asp Ser Lys Asn Thr Ala Tyr	65	70	75	80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys	85	90	95	
Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val	100	105	110	
Thr Val Ser Ser	115			

<210> 10

<211> 348

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH nucleotide
sequence of Hum C

<400> 10
gaagttcaac ttgttgagtc tgggtggcggg ctggttcagc cgggtggctc tctgcgctg 60
tcttgccgag caagcggttt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
gctgacagcg tgaagggccg ttttactatt tctggcgacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 11
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum C

<400> 11
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 12
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL nucleotide
sequence of Hum C

<400> 12
gatatccaga tgacccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac tttaccctta ccatacagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtagcaagg tcgagattaa gcgc 324

<210> 13
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum D

<400> 13
Glu val Gln Leu val Glu Ser Gly Gly Gly Leu val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110
Thr val Ser Ser
115

<210> 14
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH nucleotide
sequence of Hum D

<400> 14
gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
tcttgccgag caagcggttt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
gctgacagcg tgaagggccg ttttactatt tctagcgacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 15
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum D

<400> 15
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly

1	5	10	15
Asp Arg Val	Thr Ile Thr Cys Arg	Ala Ser Gln Ser Ile	Ser Asn Asn
	20	25	30
Leu His Trp	Tyr Gln Gln Lys Pro Gly Lys Ala Pro	Lys Leu Leu Ile	
	35	40	45
Tyr His Ala	Ser Gln Ser Ile Ser Gly Val Pro	Ser Arg Phe Ser Gly	
	50	55	60
Ser Gly Ser Gly Thr	Asp Phe Thr Leu Thr Ile	Ser Ser Leu Gln Pro	
	65	70	75
Glu Asp Phe Ala Thr	Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr		
	85	90	95
Thr Phe Gly Gln Gly Thr Lys Val	Glu Ile Lys Arg		
	100	105	

<210> 16
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum D

<400> 16	
gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtgttggtga tgcagttacc	60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg	120
ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc	180
cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg	240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa	300
ggtaccaagg tcgagattaa gcgc	324

<210> 17
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VH Domain peptide of Hum E

<400> 17	
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly	
1 5 10 15	
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr	
20 25 30	
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val	
35 40 45	
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val	
50 55 60	
Gln Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr	
65 70 75 80	
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys	

85

90

95

Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110

Thr Val Ser Ser
 115

<210> 18

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide sequence of Hum E

<400> 18

gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
 tcttgcgcag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
 ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
 gatccgaagg tgcagggccg ttttactatt tctgcggacg actctaagaa caccgcgtac 240
 cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
 tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 19

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain peptide of Hum E

<400> 19

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
 20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45

Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 20

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL nucleotide sequence of Hum E

<400> 20
gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtaccaagg tcgagattaa gcgc 324

<210> 21
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH Domain peptide of Hum F

<400> 21
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110
Thr Val Ser Ser
115

<210> 22
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH nucleotide sequence of Hum F

<400> 22
gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
tcttgccgag caagcggttt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgacccgg caaacgacaa caccatttac 180
gctgacagcg tgaagggccg ttttactatt tctgcggacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 23
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum F

<400> 23
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 24
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL nucleotide
sequence of Hum F

<400> 24
gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatctatcac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac ttaccctta ccatcagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtaccaagg tcgagattaa gcgc 324

<210> 25
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum G

<400> 25
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 28
<211> 324
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VL nucleotide
sequence of Hum G

<400> 28
gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatcaaacac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtaccaagg tcgagattaa gcgc 324

<210> 29
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum H

<400> 29
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
50 55 60
Gln Gly Arg Phe Thr Ile Ser Ala Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110
Thr Val Ser Ser
115

<210> 30
<211> 348
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic VH nucleotide

sequence of Hum H

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<400> 30
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tcttgcgcag caagcgggtt caacattaag gacacctaca tccattgggt gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
gatccgaagg tgcagggccg ttttactatt tctgcggacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348
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<210> 31
<211> 108
<212> PRT
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic VL Domain
       peptide of Hum H
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<400> 31
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1           5           10           15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
          20           25           30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35           40           45
Lys His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
        50           55           60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
        65           70           75           80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
          85           90           95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
        100          105
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<210> 32
<211> 324
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic VL nucleotide
       sequence of Hum H
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<400> 32
gatatccaga tgacccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
ggtaaagctc cgaaacttct tatcaaacac gcctctcaga gcattagcgg cgttccgagc 180
cgcttctctg gctctggctc gggcacggac ttaccctta ccatcagctc tcttcagccg 240
gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcgggtcaa 300
ggtaccaagg tcgagattaa ggcg 324
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<210> 33
<211> 116
<212> PRT
<213> Artificial Sequence
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<220>

<223> Description of Artificial Sequence: Synthetic VH Domain
peptide of Hum I

<400> 33

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30

Tyr Ile His Trp Met Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
50 55 60

Gln Gly Arg Phe Thr Met Ser Ala Asp Thr Ser Lys Asn Thr Ala Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110

Thr Val Ser Ser
115

<210> 34

<211> 348

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VH nucleotide
sequence of Hum I

<400> 34

gaagttcaac ttgttgagtc tgggtggcggc ctggttcagc cgggtggctc tctgcgcctg 60
tcttgccgag caagcgggtt caacattaag gacacctaca tccattggat gaggcaagct 120
ccgggtaagg gtctggagtg ggtggcacgt atcgaccggg caaacgacaa caccatttac 180
gatccgaagg tgcagggccg ttttactatg tctgcggacg actctaagaa caccgcgtac 240
cttcagatga actctctgcg tgccgaggac accgccgtct actactgcac gacctctggc 300
tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttct 348

<210> 35

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic VL Domain
peptide of Hum I

<400> 35

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30

Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Lys His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
 85 90 95
 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
 100 105

<210> 36
 <211> 324
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic VL nucleotide
 sequence of Hum I

<400> 36
 gatatccaga tgaccaatc tccgtctagc ctgagcgcca gtgttggtga tcgagttacc 60
 attacttgcc gcgccagcca atctatcagt aataatcttc actggtatca acaaaaaccg 120
 ggtaaagctc cgaaacttct tatcaaacac gcctctcaga gcattagcgg cgttccgagc 180
 cgcttctctg gctctggctc gggcacggac tttaccctta ccatcagctc tcttcagccg 240
 gaagactttg ccacctatta ttgtcagcag tctaatagct ggccgtatac cttcggtcaa 300
 ggtaccaagg tcgagattaa gcgc 324

<210> 37
 <211> 116
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Murine 1A6 VH Domain

<400> 37
 Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr
 20 25 30
 Tyr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
 50 55 60
 Gln Gly Lys Ala Thr Met Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
 100 105 110

Thr Val Ser Ala
115

<210> 38
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Murine 1A6 VL Domain

<400> 38
Asp Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
1 5 10 15
Asp Ser Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
35 40 45
Lys His Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Thr
65 70 75 80
Glu Asp Phe Gly Met Phe Phe Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 39
<211> 93
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human VH Domain
consensus sequence of Heavy Chain Subgroup III (Humiii)

<400> 39
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Phe Ser Trp Val
20 25 30
Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Ala Asp Ser Val
35 40 45
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Ala Tyr
50 55 60
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
65 70 75 80
Thr Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
85 90

<210> 40
<211> 81
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human VL Domain
consensus sequence of Light Chain K Subgroup I (HumKI)

<400> 40
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala
20 25 30
Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
35 40 45
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
50 55 60
Phe Ala Thr Tyr Tyr Cys Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
65 70 75 80
Arg

<210> 41
<211> 116
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Murine 1A6 VH Domain

<400> 41
Glu Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Leu Ser Cys Thr Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30
Tyr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
35 40 45
Gly Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Asp Pro Lys Val
50 55 60
Gln Gly Lys Ala Thr Met Thr Ala Asp Thr Ser Ser Asn Thr Ala Tyr
65 70 75 80
Leu Gln Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Thr Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110
Thr Val Ser Ala
115

<210> 42

<211> 108
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Murine 1A6 VL Domain

<400> 42

Asp Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
1 5 10 15
Asp Ser Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
35 40 45
Lys His Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Thr
65 70 75 80
Glu Asp Phe Gly Met Phe Phe Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 43
<211> 116
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Humanized 1A6
(HumB) VH Domain consensus sequence of Heavy Chain
Subgroup III (Humiii)

<400> 43

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr
20 25 30
Tyr Ile His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ala Arg Ile Asp Pro Ala Asn Asp Asn Thr Ile Tyr Ala Asp Ser Val
50 55 60
Lys Gly Arg Phe Thr Ile Ser Ser Asp Asp Ser Lys Asn Thr Ala Tyr
65 70 75 80
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Ala Ser Gly Tyr Trp Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val
100 105 110
Thr Val Ser Ser
115

<210> 44
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Humanized 1A6
(HumB) VL Domain consensus sequence of Light Chain K
Subgroup I (HumKI)

<400> 44
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Asn
20 25 30
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45
Tyr His Ala Ser Gln Ser Ile Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Ser Trp Pro Tyr
85 90 95
Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
100 105

<210> 45
<211> 93
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human VH Domain
consensus sequence of Heavy Chain Subgroup III (Humiii)

<400> 45
Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Asn Phe Ser Trp Val
20 25 30
Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Ala Asp Ser Val
35 40 45
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Asn Thr Ala Tyr
50 55 60
Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
65 70 75 80
Thr Arg Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
85 90

<210> 46
<211> 81

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Human VL Domain
consensus sequence of Light Chain K Subgroup I (HumKI)

<400> 46
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala
20 25 30
Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
35 40 45
Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
50 55 60
Phe Ala Thr Tyr Tyr Cys Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
65 70 75 80

Arg

<210> 47
<211> 753
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic nucleotide
sequence of Humanized scFv3 (HumI)

<400> 47
cgaaccatgg gcgatatcca gatgacccaa tctccgtcta gcctgagcgc cagtgttggt 60
gatcgagtta ccattacttg ccgcgccagc caatctatca gtaataatct tcactgggtat 120
caacaaaaac cgggtaaagc tccgaaactt cttatcaaac acgcctctca gagcattagc 180
ggcggttccga gccgcttctc tggctctggc tcgggcacgg actttaccct taccatcagc 240
tctcttcagc cggaagactt tgccacctat tattgtcagc agtctaatag ctggccgtat 300
accttcggtc aaggtaccaa ggtcgagatt aagcgcggcg gtggcggttc tgggtggcgg 360
ggtagcggtg gcggtggatc cgggtggcgg ggcagcgaag ttcaacttgt tgagtctggt 420
ggcgggtctg ttcagccggg tggctctctg cgctgtctt gcgcagcaag cggtttcaac 480
attaaggaca cctacatcca ttggatgagg caagctccgg gtaagggtct ggagtgggtg 540
gcacgtatcg acccgcaaaa cgacaacacc atttacgac cgaagggtgca gggccgtttt 600
actatgtctg cggacacctc taagaacacc gcgtaccttc agatgaactc tctgcgtgcc 660
gaggacaccg ccgtctacta ctgcacgacc tctggctact ggtttgcccta ctggggccag 720
ggcacgcttg tcaccgtctc ttctggttaa ccc 753

<210> 48
<211> 61
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-1

<400> 48
cgaaccatgg gcgatatcca gatgacccaa tctccgtcta gcctgagcgc cagtgttggt 60
g 61

<210> 49
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-2

<400> 49
gtgaagatta ttactgatag attggctggc gcggcaagta atggttaactc gatcaccaac 60
actggcgctc ag 72

<210> 50
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-3

<400> 50
ctatcagtaa taatcttcac tggatatcaac aaaaaccggg taaagctccg aaactttctta 60
tctatcacgc c 71

<210> 51
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-4

<400> 51
cccgagccag agccagagaa gcggctcgga acgccgctaa tgctctgaga ggcgtgatag 60
ataagaag 68

<210> 52
<211> 70
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-5

<400> 52
ctctggctct ggctcgggca cggactttac ccttaccatc agctctcttc agccggaaga 60
ctttgccacc 70

<210> 53
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-6

<400> 53
ccttgaccga aggtatacgg ccagctatta gactgctgac aataataggt ggcaaagtct 60
tccggc 66

<210> 54
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-7

<400> 54
gtataccttc ggtcaaggta ccaaggtcga gattaagcgc ggcggtggcg gttctggtgg 60
cgggtgtagc g 71

<210> 55
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-8

<400> 55
cgaaccatgg gcgatatcca gatgacccaa tc 32

<210> 56
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVL-9

<400> 56
cggatccacc gccaccgcta ccaccgccac cag 33

<210> 57
<211> 73
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-1

<400> 57
ggtggcgggtg gatccggtgg cggtggcagc gaagttcaac ttgttgagtc tgggtggcgggt 60
ctggttcagc cgg 73

<210> 58
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-2

<400> 58
gtccttaatg ttgaaaccgc ttgctgcgca agacaggcgc agagagccac ccggctgaac 60
cagaccgcca c 71

<210> 59
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-3

<400> 59
ggtttcaaca ttaaggacac ctacatccat tgggtgaggc aagctccggg taagggtctg 60
gagtggg 67

<210> 60
<211> 76
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-4

<400> 60
ggcccttcac gctgtcagcg taaatggtgt tgctgtttgc cgggtcgata cgtgccaccc 60
actccagacc cttacc 76

<210> 61
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-5

<400> 61
cgctgacagc gtgaagggcc gttttactat ttctagcgac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 62
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-6

<400> 62
ccagtagcca gagtccgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 63
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-7

<400> 63
ggactctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 64
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-8

<400> 64
ggtggcggtg gatccggt 18

<210> 65
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
AVH-9

<400> 65
gggttaacca gaagagacgg 20

<210> 66
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
BVH-6

<400> 66
ccagtagcca gaggccgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 67
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
BVH-7

<400> 67
ggcctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60

ttaac

65

<210> 68

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
CVH-5

<400> 68

cgctgacagc gtgaagggcc gttttactat ttctggcgac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 69

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
CVH-6

<400> 69

ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 70

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
CVH-7

<400> 70

gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 71

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
DVH-6

<400> 71

ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 72

<211> 65

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic oligonucleotide
DVH-7

<400> 72
gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 73
<211> 76
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
EVH-4

<400> 73
ggccctgcac cttcggatcg taaatggtgt tgctgtttgc cgggtcgata cgtgccaccc 60
actccagacc cttacc 76

<210> 74
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
EVH-5

<400> 74
cgatccgaag gtgcagggcc gttttactat ttctgcggac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 75
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
EVH-6

<400> 75
ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagtcat 60
ctgaagg 67

<210> 76
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
EVH-7

<400> 76
gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 77

<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
FVH-6

<400> 77
ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 78
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
FVH-7

<400> 78
gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 79
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVL-3

<400> 79
ctatcagtaa taatcttcac tggatatcaac aaaaaccggg taaagctccg aaactttcta 60
tcaaacacgc c 71

<210> 80
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVL-4

<400> 80
cccgagccag agccagagaa gcggctcgga acgccgctaa tgctctgaga ggcgtgaaag 60
ataagaag 68

<210> 81
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVH-5

<400> 81

cgctgacagc gtgaagggcc gttttactat ttctgcgac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 82
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVH-6

<400> 82
ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 83
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
GVH-7

<400> 83
gacctctggc tactggtttg cctactgggg ccagggcacg ctgttcaccg tctcttctgg 60
ttaac 65

<210> 84
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVL-3

<400> 84
ctatcagtaa taatcttcac tggtatcaac aaaaaccggg taaagctccg aaacttctta 60
tcaaacacgc c 71

<210> 85
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVL-4

<400> 85
cccagagccag agccagagaa gcggtctgga acgccgctaa tgctctgaga ggcgtgaaag 60
ataagaag 68

<210> 86
<211> 76
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-4

<400> 86
ggccctgcac cttcggatcg taaatggtgt tgtcgtttgc cgggtcgata cgtgccaccc 60
actccagacc cttacc 76

<210> 87
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-5

<400> 87
cgatccgaag gtgcagggcc gttttactat ttctgcggac gactctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 88
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-6

<400> 88
ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagtcat 60
ctgaagg 67

<210> 89
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
HVH-7

<400> 89
gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 90
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVL-3

<400> 90
ctatcagtaa taatcttcac tggatatcaac aaaaaccggg taaagctccg aaacttctta 60
tcaaacacgc c 71

<210> 91
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVL-4

<400> 91
cccagagccag agccagagaa gcggctcgga acgccgctaa tgctctgaga ggcgtgaaag 60
ataagaag 68

<210> 92
<211> 76
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-4

<400> 92
ggccctgcac cttcggatcg taaatggtgt tgctgtttgc cgggctcgata cgtgccaccc 60
actccagacc cttacc 76

<210> 93
<211> 81
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-5

<400> 93
cgatccgaag gtgcagggcc gttttactat gtctgcggac acctctaaga acaccgcgta 60
ccttcagatg aactctctgc g 81

<210> 94
<211> 67
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-6

<400> 94
ccagtagcca gaggtcgtgc agtagtagac ggcggtgtcc tcggcacgca gagagttcat 60
ctgaagg 67

<210> 95
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic oligonucleotide
IVH-7

<400> 95
gacctctggc tactggtttg cctactgggg ccagggcacg cttgtcaccg tctcttctgg 60
ttaac 65

<210> 96
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Linker
peptide

<400> 96
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly
1 5 10 15
Gly Gly Gly Ser
20